The following pages are an edited version of PRH (Lofty) Watson's excellent book ""It's Nothing To Do With Me, I'm Radar". Lofty is ex Chief Radio Electrician, RAN 1946 to 1958.

The original proposal for a major RAN W/T station network had arisen back in 1924. Procrastination had reigned all those years, but who in governemnt had been watching Germany, and indeed also Japan's excursions into China, all these subsequent years? At least the Naval Board was thoroughly aware of the strategic needs in this respect.

Land was finally chosen at Canberra, on the Canberra-Queanbeyan main Road for the Receiving Station, away from any man made electrical interferrence. This became, eventually, HMAS Harman Naval Radio Station, named egotistically by and from part of the surnames of two navql commanders of that time. The site chosen for the transmitting station was near the commercial and ABC MF broadcast transmitter sites at Belconnen, in the vast open spaces of Canberra's paddocks, then totally, and exclusively, inhabited by sheep. Today (note 1), a spreading dormitory suburb and shopping complex occupies almost up to the doors of these transmitter positions. The then positioning of the transmitter and receiver stations approximately 18 kilometres apart gave the receiving station's operators a chance to hear distant calling stations and ships, without their receiver sets being swamped by their own powerful local transmitters.

As Canberra was to be the main W/T station, Belconnenwas eventually fitted with the high power (200Kw) low frequency (44 KHz) transmitter that was to becomethe main Navy broadcast service, known as "Bels Broadcast".The aerial for this LF service was supported by three 600 feet steel masts, suitably guyed at each 200 feet level.This low frequency choice was made following the success of the low frequency service from Rugby (England) on 16 KHz. The lower the broadcasting frequency, the greater the ground wave, and consequently the greater the area covered.

The station also held many medium power HF transmitters which were used for ship/shoretwo way services, and for international naval circuits throughout the then "Empire". The main Bels broadcast was also transmitted on the HF band.

Al output was normally in Morse code, the texts properly and purposedly coded according to the circumstances.In the late 1940s a gradual move to Frequency Shift Kying was commenced, and therebyRadio Teletype (RTT) was introduced to all RAN ships as the appropriate receiving equipment became available.

Although good Naval Telegraphists were able to read Morse up to 30 words a minute, the main Bels broadcast was usually sent at only a 16 WPM rate on the well established theory that “every ship will be able to read it at that speed” whereas being clever and efficient by transmitting at 25 WPM will inevitably result in every second ship requesting “repeats” due to their poor reception conditions, to say nothing of trying to write down and concentrateon a fast transmission whilst holding on to a bucket between your knees , courtesy of a belligerant seaway,

The excellent choice of this low frequency for Bels was proven time and time again, with good coverage over a very large patch of the world’s oceans. Some RAN ships even read Bels whilst in the Mediterranean Sea. Post WW2 (1947), when the cruiser “Australia” was despatched to Heard Island, in the Antarctic, to rescue the seriously ill station doctor (suffering from acute appendicitis) the only workable frequency between that ship and Canberra was found to be the LF band, so the Bels broadcast was suspended and two way ship/shore signals were passed on the high powered LF transmitterfor that emergency, proving once more the the worth of that particular band. In fact, LF is the optimum band for communicating with submerged submarines, witness the US Navy’s LF communications facility at NW Cape, which has a primary function in broadcasting to the United Statyes Navy’s world wide patrol of nuclear submarines.

Incidentally, the problem of doctors getting appendicitis when in a remote inaccessible Antarctic location was solved by making all future Antarctic-bound doctors subject to an appendectomy before departure.

The major transmitters eventually fitted at Canberra were all manufactured in Australia either by AWA or STC, and provided excellent service. Because of the high power generated by by the 200 Kw Belconnen STC manufactured LF transmitter, the output stage valves were, in fact, water cooled.

The fixed W/T circuits established throughout the Empire from Canberra included Columbo, Whitehall, Wellington, Canada, South Africa, Hong Kong and Singapore. Most of these were coducted in ordinary speed Morse code, but some were high speed Morse code at speeds of up to 200 WPM. These signals were controlled by means of the Morse code first being processed on punched paper tape, then playing the tape at the higher speed to key the transmitter.

NOTES

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